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Sub-federal administrative regulation in Russia

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The objective of the study is to analyze the sub-federal administrative regulation in Russia: registration procedure, licensing and certification. Two questions are addressed: 1) what are the consequences of the sub-federal initiatives in these procedures? and 2) what are the motivations of the regional politicians behind these methods of the regulation? The methodology used is empirical analysis testing of the contradicting predictions of different theories: public interest theory, capture theory, economic theory of regulation, and the tollbooth theory. The conclusion is that the sub-federal authorities in Russia were acting out of self-interests.

Keywords. Russia, administrative regulation, sub-federal governments, empirical analysis.

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NON-TECHNICAL SUMMARY

In Russia the administrative regulation remains rather active. Partially it is explained by the objective reasons. Any transition period, resulted form the large changes in the economic and social foundations, is accompanied by inevitable contradictions and lagging in the development of the adequate institutions and market basis. Imperfections in the market mechanism at this period are compensated with direct government's interference; one of the forms is the administrative regulation. Decrease in the speed of the social transformations allows reducing the administrative control. The relaxation of the administrative regulation of economic activity is one of the declared at the federal level long-run policies in Russia.

Russia is a federal state and essential influence on the economic and institutional characteristics is exerted by the sub-federal level. The wide legislative and executive autonomy allows the regional authorities to introduce local mechanisms of the administrative regulation sometimes contradicting the federal macroeconomic policy.

The main spheres of the administrative entry regulation in Russia are registration of enterprises, licensing of business undertakings and certification of goods and services. The review of the regional legal documents shows the active participation of this level authority in the determination of the registration procedure cost, duration and list of the obligatory documents. They widely used the opportunity to regulate the licensing as well. The study of the legislation revealed a lot of documents adopted in the regions and directed at the establishing rules and standards of goods and services certification, this legislative initiatives dealt not only with the voluntary certification but extended over the obligatory one. An interesting observed fact is high level of heterogeneity in the administrative entry regulation across Russian regions both in the rules of the procedures and in the associated cost.

Development of the administrative reform and further steps aimed at the deregulation and debureaucratization in Russia pose two questions: 1) what are the motivations of the regional politicians to use the administrative entry regulation; and 2) what are the consequences of these sub-federal initiatives?

Predictions presented in the literature are ambiguous. If a government is benevolent and pursues social efficiency, the entry regulation is associated with higher consumer welfare, lower price, fewer market failures and fair competition. However if the government is captured, corrupt or pursues its own interests results of the regulation are unpredictable. Our estimations have shown the negative effects of the sub-federal administrative regulation on the regional economic and social indicators in the high performing regions, however in the low performing ones the regulation was associated with some positive effect.

If the government is a benevolent the motivations of the regional politicians to the regulation are determined by the symptoms of the market failures. If the government is captured the regulatory

policy expresses the interests of the powerful industrial or consumer groups. If the government is interested in the maximization of political support or personal income the regulation is pursued for the benefits of politicians and bureaucrats. The conclusion of the undertaken estimations is that the motivations of the sub-federal authorities were not benevolent. Evidences of self-interested policy in the regulatory initiatives are revealed.

The results show that the sub-federal authorities in Russia acted in the administrative regulation out of self-interests. Their intervention was harmful for regional economic performance, for instance, each initiative in the certification was associated with 0.03% decrease of GRP growth and 0.01% decrease of trade turnover growth in the regions. The negative impact was stronger in the high performing regions. However the regulation resulted in some positive outcomes in the regions experienced problems with economic growth. Russia is in the stage of economic growth now, and it is important to develop institutional environment supporting this dynamics. Results of the project are arguments in favor of the declared policy of deregulation. And despite of the serious critics of the recent steps undertaken toward centralization the restrictions imposed by Russian federal government on the realm of the sub-federal jurisdiction in the administrative regulation should be admitted as reasonable.

1. INTRODUCTION

The administrative regulation is one of the forms of a government control over an economic activity. Specific features of the administrative regulation are implementation through bureaucratic procedures and relatively high level of discretion delegated to officials. The international experience demonstrates that an administrative regulation is an exceptional measure of government interference into markets and is used when other tools are very ineffective or fail to succeed in getting desired results. Reasons for a limited sphere for administrative regulation usage are high transaction costs, increase of price, decrease of resource productivity and, more importantly, creation of grounds for a corruption and a rent-seeking behavior of government officials.

In Russia administrative regulation remains rather active. Partially its extent is explained by objective reasons. Any transition period, resulting form large changes in the economic and social foundations, is accompanied by inevitable contradictions and lagging in the development of adequate institutions and markets. Very often, instead of speeding up of the development of institutional foundations, the imperfections in the market mechanism at this period are compensated with a direct government regulation. Decrease in the speed of the social transformations allows reduction in the government control. The relaxation of the administrative regulation of economic activity is one of the declared at the federal level long-run policies in Russia. However this task is not easy due to the aspirations of regulatory agencies to reproduce themselves and to extend their influence.

Russia is a federal state and essential influence on the economic and institutional characteristics is exerted by the sub-federal level, which has a wide autonomy in the decision making regarding governance methods of the economic processes on the territory. Their wide legislative and executive power allows the regional authorities to introduce local mechanisms of administrative regulation. Sometimes federal level priorities do not correspond to the directions of the sub-federal policies. Examples of such policy are increase of the sub-federal budget subsidies to local producers in the response to the reduction of the subsidizing from the federal budget and creation of interregional trade barriers despite the central authorities measures aimed at the integrity of Russian internal market.

The main spheres of administrative regulation in Russia are registration of enterprises, licensing of business undertakings and certification of goods and services. Corresponding to the law of 1990 registration was executed by the local governments, cities and districts. Since July 2002 however functions of the registration were transferred to the territorial departments of the federal tax organs. Organizations executing the licensing are federal ministries and departments and executive bodies of the subjects of Russian Federation. However there is a distinct tendency to reduce the sub-federal level power with every reform in the license legislation and to move it to the federal level. The certification authority legislatively belongs exclusively to the federal government.

It means that the interference of the sub-federal government into the administrative regulation either was legislatively excluded, what was observed for the certification and registration of enterprises, or

was essentially restricted, an example of this case is licensing. It was supposed that the centralized approach would equalize conditions of business development and of competition on the territory of Russia provided that the sub-federal level authorities will follow the norms of federal legislation. However even the formal conditions of business development differed among the Russian regions and very often they violated the federal legislation.

Despite the fact that according to the federal legislation the sub-federal level was not included into the process of the registration procedure regulation, the review of the regional legal documents (Appendix A1) shows the active participation of this level authority in the determination of cost, terms and list of the obligatory documents (Tables A1–A6). They widely used the opportunity to regulate licensing as well (Table A7). The study of the legislation revealed a lot of documents adopted in the regions and directed at the establishing rules and standards of goods and services certification, what is federal jurisdiction. Moreover this legislative initiative dealt not with the voluntary certification only but extended over the obligatory one (Table A8).

Objective of the study is to study the mentioned sub-federal administrative regulation in Russian regions. Two questions will be addressed: 1) what are the consequences of the sub-federal initiatives aimed at the administrative procedures of registration, licensing and certification; and 2) what are the regional politicians' motivations to use these methods of the regulation.

2. REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK

2.1. Theoretical predictions

Predictions and hypotheses about effects and motivations of regulation are discussed in the public interest theory, capture theory, economic theory of regulation, and in the tollbooth theory.

The public interest theory regards any level of government as a benevolent entity that pursues social efficiency and regulatory policy is designed to maximize social welfare (Stigler, 1971; Joskow and Noll, 1981). A basis for government regulation of the economic activity is that under certain conditions unrestrained competition does not work effectively. These market failures are natural monopoly, monopoly, and externalities. In the case of a natural monopoly the problem is that there is a fundamental conflict between allocative efficiency and productive efficiency; entry regulation permits only one firm to produce (as required for productive efficiency), whereas price regulation restricts the firm to setting the socially optimal price (as required for allocative efficiency). Antitrust action can be used to reduce monopoly power and increase economic efficiency. In the case of externalities, imposition of restrictions on an activity that generates negative externalities can result in socially preferred allocation. According to the public interest theory the regulation cures market failures and may be able to raise social welfare.

The capture theory states that either regulation is supplied in response to the industry's demand or the regulatory agency comes to be controlled by the industry over time, in other words legislators and regulators are captured by the industry (Bernstein, 1955). The conclusion of the capture theory is that

the regulation is not strongly correlated with the existence of market failures, regulation is inherently pro-producer and it tends to raise industry profit. In potentially competitive industries the regulation supports prices above cost and prevents entry from dissipating rents. In naturally monopolistic industries the regulation has little effect on price and above-normal profit is allowed to be earned.

The economic theory of regulation holds that regulation is not associated with market failures however it is not exclusively pro-producer, and evidence of this statement is observation of waves of regulation and deregulation. The key assumption of the economic theory of regulation is that regulation redistributes wealth and is supplied in response to the demands of interest groups acting to maximize their income (Stigler, 1971). Regulators aim to remain in office and design the regulation to maximize political support. Interest groups, understanding this goal, compete for favorable regulation by offering political support in exchange. Modeling the regulatory policy based on the premise that legislator or regulator implements a policy maximizing political support (Peltzman, 1976) generates several testable hypotheses. Firstly, there is a tendency for regulation to benefit relatively small groups with strong preferences for regulation at the cost of relatively large groups with weak preferences for regulation. Secondly, even if regulation is pro-producer, policy will not be set so as to maximize industry profit because of the constraining influence of consumer groups. Thirdly, regulation is most likely in relatively competitive or relatively monopolistic industries due to the biggest effect on the group's well-being. Becker's model (Becker, 1983) focuses on the competition between interest groups assuming that regulators just transmit the pressure of interest groups and regulation is used to increase welfare of more influential ones. One of the inferences of this approach is a hypothesis that presence of market failures makes regulation more likely because the gain to some interest groups is large relative to the loss to other interest groups and the former have stronger incentives to influence regulators.

The tollbooth theory holds that regulation is pursued for the benefits of politicians and bureaucrats while the industry is left worse off by regulation. Any government intervention aimed at market failures leads to rents for government employees and to a certain amount of corruption or other abuse of power; there is a trade-off between market failures and government failures (McChesney, 1987; Acemoglu and Verdier, 2000). Some authors suggests that corruption is beneficial for the economy especially when bureaucratic regulations are cumbersome (Huntington, 1968; Lui, 1985), while others ague that corruption entails damaging consequences for growth, efficiency and investments (Shliefer and Vishny, 1993;. Djankov *et al.*, 2002; De Soto, 1990; Shang-Jin Wei, 2000; Mauro, 1995). Abuse of power and corruption are perceptibly different in the different societies and is determined by many economic and social forces among the fundamental ones are level of rents in general and market structure (Ades and Tella, 1999).

Predictions about aims and consequences of the regulation are ambiguous. The summary of the reviewed theoretical results is presented in the Table 1.

2.2. Some observations about administrative regulation in Russia

The problems of the administrative barriers identification, cycles in their development, exploitation, and distraction in Russia are discussed in Auzan, Kryuchkova, Kalyagin, Ovsyannikova, Obidenov,

Table 1. Theoretical predictions

Theory	Predicted correlations with regulation				
	Social welfare	Rent level	Abuse of power	Entry barriers	Market failures
Public interest theory	+	–		+	+
Capture theory		+		+	
Economic theory of regulation		+		+	+
Tollbooth theory		+	+	+	

Tambovtsev, Shastitko (2002). The authors note the rise of activity of the regional level governments in the creation of new administrative barriers as a counterbalance for the federal level decisions aimed at the decreasing of the barrier regulation. Obolentsev (2004) analyzes administrative regulation of federal, sub-federal and local jurisdiction in Russia aimed at investment activity and concludes that duration and costs of the procedures are very high, he notes that the most difficult are the first steps opening the investment cycle; this creates problem of "bottle-neck" from the very beginning and weakens incentives to invest. Degtyarev and Malikov (2003) make conclusion about corruption base of the administrative barriers in Russia. These authors and Auzan and Kryuchkova (2001) provide several quantitative estimations of transaction costs caused by the administrative barriers in Russia. Problems of interaction and partnership between business and governments including the administrative barriers are discussed in Zausaev, Vorontsova, and Pustovit (2005) and in Kurbatova and Aparina (2003). The authors emphasize that the regional executive authorities possess a wide variety of tools to influence the producers, on the one hand, and inefficiency of the regional models of interaction with business, on the other hand. Evidences of public interest theory, tollbooth view and regulatory capture theories are found in the entry regulations of Russian alcohol market in Yakovlev's study (Yakovlev, 2006); prevalence of the theoretical predictions depends on the types of the regulation.

This study contributes to the investigation of the administrative barriers in Russia and focuses on the sub-federal regulatory initiatives. The methodology of the paper owes a great deal to two empirical studies testing the theoretical assumptions about effects of the government administrative regulation. De Soto (1990) analyzes entry regulation in Peru, he estimates official costs, official time, corruption and bureaucratic delays. Djankov, La Porta, Lopez-de-Silanes, and Shliefer (2002) present empirical data on the regulation of entry of start-up firms in 85 countries and cover the official costs only. They show that countries with heavier regulation of entry have higher corruption and larger unofficial economies, but not better quality of public or private goods. The evidence is

inconsistent with the public interest theory of regulation, but supports the view that entry regulation benefits politicians and bureaucrats.

3. MODEL SPECIFICATION AND ESTIMATION RESULTS

3.1. Tested hypotheses

In this section testable hypotheses concerning the sub-federal administrative regulation are formulated based on the reviewed theoretical predictions. The public interest theory predicts that government's intervention should be associated with higher consumer welfare and fewer negative externalities. As the result the sub-federal administrative regulation increases social welfare.

Hypothesis 1. The sub-federal administrative regulation increases social welfare.

A common conclusion of all theories of the consideration is that the regulation prevents entry of new producers to markets.

Hypothesis 2 The sub-federal administrative regulation results in entry barriers and in fewer producers operating in the regional markets.

The economic theory of regulation holds that a regulation is associated with market failures. The public interest theory suggests more precise prediction, that the regulation remedies market failures. However it also means that if some regions experience market failures then the regulators would choose more regulatory procedures. These statements allow formulation of the following hypotheses.

Hypothesis 3. The sub-federal administrative entry regulation prevents market failures.

Hypothesis 4. More active sub-federal administrative entry regulation is an attribute of regions which have serious market failures.

Another attribute of the regions derived from the foundations of the theories of regulation is level of rent available for redistribution. One of the common conclusions of the capture theory, the theory of economic regulation and the tollbooth theory is that a regulation allows extracting rent from the political process and the regulatory system determines level of rent appropriation by different participants of the process. An implication is that regulators and interest groups should have stronger incentives for a regulatory activity when potential for distributed rent is high. However public interest theory's inference is that regulation is aimed at the decreasing of monopolistic prices and should reduce the rent. So, the suggested testable bidirectional relationship is as follows:

Hypothesis 5. Intensive sub-federal administrative regulation is an attribute of regions where level of overall available rent is higher.

The tollbooth theory holds that regulators are interested in maximization of their earning. Corrupt bureaucrats may set official fees low in order to increase their unofficial income; however they can be interested in longer duration of the procedures and in more documents needed to be presented;

waste of time creates incentives to avoid official ways and to get release from regulation. Dininio and Ortung (2004) note extensive variation of corruption at the regional level in Russia. These arguments are base for the following hypothesis.

Hypothesis 6. High level of the sub-federal administrative entry regulation, long duration and introduction of additional required documents of the administrative procedures are attributes of regions which have higher level of abuse of power.

The proposed hypotheses address the questions of the project. The first three hypotheses deal with the influence of the sub-federal administrative regulation on the regional performance and on the important features of the development, and the others relate to the driving forces and motivations of the regulators.

3.2. Model specification

The proposed hypotheses form several regressions. Hypothesis 1 implies regression of the regional economic outcomes on the regulation and on the other regional variables. However due to the delays of the effects of the regulation and the regulatory decisions it is more correct to estimate the first differences of the target variables.

1) $[Economic\ performance_{rt} - Economic\ performance_{r(t-1)}] = \Sigma\alpha_n \cdot [Sub\text{-}federal\ administrative\ regulation\ of\ entry_{nrt} - Sub\text{-}federal\ administrative\ regulation\ of\ entry_{nr(t-1)}] + \Sigma\beta_i \cdot [Regional\ structural\ variable_{irt} - Regional\ structural\ variable_{ir(t-1)}] + \tau \cdot Year\ dummies + Error_{rt}$.

Hypothesis 2 suggests that the regulation results in few producers.

2) $[Number\ of\ producers_{rt} - Number\ of\ producers_{r(t-1)}] = \Sigma\gamma_n \cdot [Sub\text{-}federal\ administrative\ regulation_{nrt} - Sub\text{-}federal\ administrative\ regulation_{nr(t-1)}] + \Sigma\mu_i \cdot [Regional\ structural\ variable_{irt} - Regional\ structural\ variable_{ir(t-1)}] + \theta \cdot Year\ dummies + Error_{rt}$.

Hypotheses 3 and 4 connect the sub-federal administrative regulation with market failures evoking the regulation. However hypothesis 5 suggests that rent-seeking behavior determines the regulatory initiatives. The estimation has to incorporate the property of the regulation to depend on the market failures, on the one hand, and to influence them on the other hand. The proposed estimation procedure is the following two-equation system.

3) $[Sub\text{-}federal\ administrative\ regulation_{nrt} - Sub\text{-}federal\ administrative\ regulation_{nr(t-1)}] = \Sigma\eta_j\ [Indicator\ of\ market\ failure_{rj(t-1)} - Indicator\ of\ market\ failure_{rj(t-2)}] + \lambda \cdot [Level\ of\ rent_{rt} - Level\ of\ rent_{r(t-1)}] + \omega \cdot Year\ dummies + Error_{rt}$,

4) $[Indicator\ of\ market\ failure_{rjt} - Indicator\ of\ market\ failure_{rj(t-1)}] = \Sigma\varphi_n \cdot [Sub\text{-}federal\ administrative\ regulation_{rn(t-1)} - Sub\text{-}federal\ administrative\ regulation_{rn(t-2)}] + \sigma \cdot Year\ dummies + Error_{rt}$.

Hypothesis 6 implies correlation between abuse of power and regulation; the most important is supposed to be duration of the administrative procedures and introduction of additional documents. Minds of bureaucrats are unobservable: whether they are corrupt or benevolent. However we can observe outcomes of their behavior. If bureaucrats are corrupt the opportunities of the administrative regulation and delegated discretions result in higher level of abuse of power.

5) $Abuse\ of\ power_r = \Sigma\rho_n \cdot Sub\text{-}federal\ administrative\ regulation_{nr} + \psi\ Duration\ of\ the\ sub\text{-}federal\ administrative\ procedures_r + \varsigma \cdot Additional\ documents_r + Error_r$.

Here t stands for the year, r — for the region, n — for the administrative regulation variable, i — for the variables controlling the spurious correlation, j — for the indicators of market failures.

The expected results of the estimations depend on the sub-federal governments' attitudes towards the regulation of entry. If the regulation is benevolent then the predicted results are as follows: $\alpha>0$, $\upsilon<0$, $\lambda<0$, $\gamma\leq 0$, $\eta>0$ and $\varphi<0$. If the regulation is captured the results are $\upsilon>0$, $\lambda<0$, $\gamma\leq 0$. If the regulators stick to the behavior predicted by the economic theory of regulation then $\lambda>0$, $\gamma\leq 0$ and $\eta>0$. If the regulation is corrupt the results are $\lambda>0$, $\rho>0$, $\psi>0$, $\varsigma>0$ and $\gamma\leq 0$.

3.3. Data

The analysis is based on the newly constructed data set, which describes the administrative regulation of entry by start-up companies in 82 Russian regions, the period spans from 1992 through 2005. The data cover administrative procedures of the registration of the sub-federal level in Russia that an entrepreneur needs to carry out to start a legally operating firm participating in industrial or commercial activity and the sub-federal initiatives in the licensing and in the certification as well. The information about registration procedures includes the official costs, time and documents necessary for its completion. Source of the information is the legislative database "Consultant Plus. Regional Legislation". Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002) developed a methodology for the construction a data set of starting business procedures, some parts of the approach are implemented in the data set construction.

Indicators of the economic development of Russian regions are taken from the statistical yearbooks "Regions of Russia". Differences in the level of corruption across the Russian regions are measured in Transparency International and the Information for Democracy Foundation survey (Regional Corruption Indices 2000, 2002).

The indicators supposed to be used in the hypotheses testing are presented in the Table 2.

3.4. Estimations

Three indicators characterizing the regional economic performance are gross regional product (GRP) and trade turnover as characteristics of the current performance and fixed capital investment as an indicator of future performance. Correspondingly, estimations of the first equation were done for three different indicators of regional development. In order to eliminate regional scale effects they are taken per capita.

There are three forms of the administrative regulation we deal with: licensing, certification and registration of enterprises. The last procedure in contrast with the other ones differs for the enterprises with foreign investors' involvement and without foreign partners and has three characteristics: official fees of the registration, additional documents introduced by the sub-federal authorities and duration of the procedure. Aggregate cost measure of the registration includes official fees and

monetized value of the entrepreneur's time devoted to the waiting of the procedure results and to the preparation of additional documents. The time of the entrepreneur was valued as the product of time and per capita GRP expressed in per day terms, assuming that one document requires one day. Level of the overall cost of registration was determined as a sum of aggregate registration cost for enterprises with participation of foreign investors and without ones.

Table 2. Empirical data

Indicators	Source of data/covered period/number of Russian regions
Measures of the sub-federal entry regulation: • Registration of enterprise: - Required time; - Official fees; - Number of the required documents • Certification: - Number of the adopted documents • Licensing: - Number of the adopted documents	Legislative database "Consultant Plus. Regional Legislation" 1992–2005 82 regions
Measures of the regional economic performance: • Gross regional product • Trade turnover • Investments	Statistical yearbook "Regions of Russia" 1995–2003 79 regions
Level of rent: • Overall profit of enterprises	Statistical yearbook "Regions of Russia" 1992–2004 79 regions
Number of producers: • Number of enterprises • Number of small business enterprises	Statistical yearbook "Regions of Russia" 1992–2004 79 regions
Market failures: • Pollutions • Sickness rate	Statistical yearbook "Regions of Russia" 1992–2004 79 regions
Abuse of position as government officials in Russian regions: • Corruption perception indexes	TI and INDEM survey 2000 40 regions

Due to the possible different behavior of the regional authorities at a stage of growth and at a stage of depression the estimations were done for the whole set of Russian regions and for the subsets of high and low performing ones. The estimation method is OLS regression. The detailed estimation results are in Appendix A2. The summary of the results is presented in the Table 3.

Table 3. Influence of the sub-federal administrative regulation on the regional development

	Coefficient α		
	All regions	High performing	Low performing
Gross regional product			
Licensing	–0.532 (0.416)	–0.743 (0.559)	–0.694 (0.568)
Certification	**–0.312**** **(0.129)**	**–0.327**** **(0.161)**	–0.139 (0.208)
Overall registration costs	–0.279 (0.835)	–0.547 (0.980)	**0.485**** **(0.223)**
Trade turnover			
Licensing	–0.119 (0.708)	–0.129 (0.094)	–0.732 (1.480)
Certification	**–0.572**** **(0238)**	**–0.793**** **(0.272)**	0.221 (0.538)
Overall registration costs	–0.126 (0.156)	–0.108 (0.166)	–0.508 (0.591)
Fixed capital investment			
Licensing	–0.671 (0.708)	**–0.703*** **(0.414)**	–0.406 (2.029)
Certification	1.474 (2.171)	–0.464 (1.195)	11.628 (7.772)
Overall registration costs	0.179 (0.143)	0.813 (0.740)	0.121 (0.083)

Note: Standard error in the brackets; * — significant at 10%; ** — significant at 5%; *** — significant at 1%.

The estimations revealed statistically significant correlations between administrative regulation and economic performance. However the directions of the regulatory effects differ for the high performing and low performing regions. Certification negatively influenced GRP and trade, while licensing restrained investment inflow in the high performing regions. However in the low performing regions registration was associated with positive effects on GRP. So the public interest prediction that $\alpha>0$ is confirmed for the regions which experienced problems with economic growth only.

The second equation estimates influence of the regulation on the entry of new producers in the regions. Two indicators were taken: total number of enterprises and number of small business enterprises. The theories of the consideration suggest $\gamma\leq 0$. The estimations did not reveal any positive significant correlation, moreover the significant and negative effect of licensing on the small business development in the high performing Russian regions was observed (Table 4).

Equations 3 and 4 assess contribution of the market failures and rent-seeking into the regional activity aimed at the implementation of the administrative procedures on the one hand and effect of the

regulation on the market failures on the other hand. Two market failure indicators were chosen: sickness rate and air pollutions produced by stationary sources. Level of overall profit in the regions is supposed to reflect a level of rent available for redistribution. The results of the interest are presented in the Tables 5, 6.

Table 4. Influence of the sub-federal administrative regulation on the entry in the business

	Coefficient γ		
	All regions	High performing	Low performing
Number of enterprises			
Licensing	0.311	0.124	0.101
	(3.473)	(0.396)	(0.080)
Certification	–0.113	–0.788	–0.435
	(0.106)	(1.121)	(0.305)
Overall registration costs	–0.385	–0.568	0.717
	(0.664)	(0.654)	(3.280)
Number of small business enterprises			
Licensing	**–0.127***	**–0.155***	–0.126
	(0.074)	**(0.085)**	(0.158)
Certification	–0.148	–0.361	0.342
	(0.224)	(0.240)	(0.616)
Overall registration costs	0.397	0.127	0.619
	(1.410)	(1.410)	(0.658)

Note: Standard error in the brackets; * — significant at 10%.

Table 5. Influence of the market failures on the sub-federal administrative regulation

	Coefficient η		
	All regions	High performing	Low performing
Licensing			
Illness	0.124	0.647	–0.156
	(0.754)	(1.261)	(0.903)
Pollution	4.184	–2.971	13.568
	(17.229)	(21.598)	(29.474)
Certification			
Illness	–0.270	–0.407	–0.259
	(0.209)	(0.364)	(0.223)
Pollution	–1.640	–0.112	–3.766
	(4.779)	(6.229)	(7.291)
Overall registration costs			
Illness	4.230	5.248	3.715
	(5.962)	(9.457)	(4.043)
Pollution	7034.441	11444.37	–633.436
	(10391.94)	(15042.49)	(7942.077)

The estimations did not confirm the predictions of public interest and economic theory of regulation that $\eta>0$. No statistically significant correlations supporting motivation of the administrative regulation by market failures were received (Table 5).

However the prediction of economic theory of regulation and tollbooth theory about rent-motivated behavior of regulators has got confirmation for the low performing regions. The significant and positive correlation between sub-federal initiatives in the registration procedure and total profit of regional producers was observed (Table 6).

Table 6. Influence of rent level on the sub-federal administrative regulation

	Coefficient λ		
	All regions	High performing	Low performing
Licensing	0.508 (0.646)	0.421 (0.738)	–0.390 (1.689)
Certification	–0.361 (0.222)	–0.328 (o.213)	–0.308 (0.418)
Overall registration costs	55.151 (59.198)	43.412 (81.649)	**168.451***** **(54.783)**

Note: Standard error in the brackets; *** — significant at 1%.

Public interest theory suggests that regulation correct market failures and $\varphi<0$. However the estimations do not confirm this prediction, moreover the revealed significant correlation is positive (Table 7).

Table 7. Influence of the sub-federal administrative regulation on the market failures

	Coefficient φ		
	All regions	High performing	Low performing
Illness			
Licensing	–0.222 (0.282)	–0.187 (0.345)	–0.494 (0.519)
Certification	0.909 (0.859)	1.421 (0.995)	–1.691 (1.848)
Overall registration costs	0.333 (0.580)	–0.020 (0.063)	**4.949**** **(2.018)**
Pollution			
Licensing	–0.205 (0.201)	–0.280 ((0.196)	–0.215 (0.318)
Certification	–0.198 (0.483)	–0.550 (0.547)	0.163 (0.112)
Overall registration costs	0.417 (0.390)	0.319 (0.411)	0.195 (0.161)

Note: Standard error in the brackets; ** —significant at 5%.

The last equation estimates links between corruption and regulatory activity. The obtained results confirmed tollbooth predictions about non-benevolent motivations of the regulators (Table 8). It was suggested that extending of the procedures period and introduction of additional documents create ground for corruption. These variables are statistically significant and positively correlated with different corruption perception indexes.

Table 8. Influence of the sub-federal administrative regulation on the corruption

	Integral corruption perception index	Administrative corruption perception index	Legislative authorities corruption perception index	Executive authorities corruption perception index
Registration cost of an enterprise without foreign investors participation	0.305 (0.532)	–0.148 (0.239)	0.105 (0.145)	0.132 (0.161)
Duration of the registration procedure for an enterprise without foreign investors participation	0.140 (0.453)	–0.341 (0.204)	0.124 (0.123)	0.166 (0.137)
Additional documents for registration of an enterprise without foreign investors participation	**0.130**** **(0.050)**	0.023 (0.022)	**0.028*** **(0.014)**	**0.034**** **(0.015)**
Registration cost of an enterprise with foreign investors participation	–0.164 (0.189)	0.503 (0.851)	0.095 (0.514)	–0.401 (0.571)
Duration of the registration procedure for an enterprise with foreign investors participation	–0.331 (0.418)	**0.352*** **(0.188)**	0.064 (0.114)	–0.060 (0.126)
Additional documents for registration of an enterprise with foreign investors participation	0.078 (0.072)	0.005 (0.023)	–0.008 (0.019)	–0.004 (0.022)
Certification	–0.019 (0.028)	0.012 (0.013)	–0.010 (0.008)	–0.0002 (0.008)
Licensing	0.002 (0.007)	0.002 (0.003)	–0.001 (0.002)	–0.002 (0.002)

Note: Standard error in the brackets; * — significant at 10%; ** — significant at 5%.

4 .CONCLUSIONS

The estimations of the proposed model have provided some support to each of the theories. However the predictions of the economic theory of regulation and of tollbooth theory have got more confirmations. If we distinguish between two types of predictions formulated in the theories: motivation and results of the sub-federal initiatives in the administrative procedures, then the results of the estimations are as follows:

Table 9. Summary of the estimation results

Theories	Motivations	Results
Public interest		Confirmed for low performing regions (gross regional product) Confirmed for high performing regions (entry barriers)
Capture theory		Confirmed for high performing regions (entry barriers)
Economic regulation	Confirmed for low performing regions (rent-seeking)	Confirmed for high performing regions (entry barriers)
Tollbooth theory	Confirmed for low performing regions (rent-seeking) Confirmed for all set of regions (abuse of power)	Confirmed for high performing regions (entry barriers)

Conclusion of these results is that the sub-federal authorities did not act as benevolent; they were mostly motivated by self-interests. The sub-federal authorities' intervention was harmful for the high performing regions; the administrative regulation did not cure market failures and resulted in the creation of entry barriers for small business in these regions. However the sub-federal regulation was associated with higher production in the regions experienced difficulties with economic growth.

APPENDICES

A1. Summary statistics

Table A1. Summary statistics of the fees level for registration procedure of the enterprises without foreign investor in the Russian regions, divided by minimal monthly wage*

	Minimum	Maximum	Median	Average	Standard deviation	Variation coefficient
1994	0.10	35	0.1	3.83	5.72	1.49
1995	0.04	35	0.04	3.84	5.69	1.48
1996	0.03	35	0.03	4.24	6.21	1.46
1997	0.02	200	0.03	7.32	22.74	3.11
1998	1	479	23.95	25.30	53.88	2.13
1999	1	479	23.95	25.52	53.84	2.11
2000	1	479	23.95	25.29	53.71	2.12
2001	1	400	20	22.49	46.01	2.05
2002	1	400	10	22.49	46.01	2.05
2003	1	200	20	19.62	20.47	1.04
2004	1	200	20	20.70	20.01	0.97
2005	3	200	20	21.13	19.84	0.94

* — From the legislative data base "Consultant Plus. Regional legislation".

Table A2. Summary statistics for the duration of the registration procedure of the enterprises without foreign investors in the Russian regions

	Minimum	Maximum	Median	Average	Standard deviation	Variation coefficient
1994	1	30	3	5.76	10.09	1.36
1995	1	30	3	5.77	10.08	1.35
1996	1	30	3	6.08	10.51	1.32
1997	1	30	3	5.77	10.08	1.35
1998	1	30	3	6.08	10.51	1.32
1999	1	30	3	6.39	10.90	1.29
2000	1	30	3	6.08	10.51	1.32
2001	3	30	3	5.48	9.59	1.37
2002	3	30	5	6.90	8.48	1.05
2003	3	30	5	6.06	6.61	0.99
2004	3	30	5	5.79	5.77	0.92
2005	3	30	5	5.52	3.77	0.68

Table A3. Summary statistics for the number of the additional documents introduced in the Russian regions for the registration of the enterprises without foreign investors

	Minimum	Maximum	Median	Average	Standard deviation	Variation coefficient
1994	0	3	0	0.15	0.56	0.27
1995	0	3	0	0.14	0.55	0.25
1996	0	3	0	0.11	0.47	0.25
1997	0	4	0	0.15	0.62	0.24
1998	0	4	0	0.15	0.62	0.24
1999	0	4	0	0.15	0.62	0.24
2000	0	4	0	0.14	0.57	0.24
2001	0	4	0	0.13	0.56	0.22
2002	0	4	0	0.15	0.60	0.25
2003	0	4	0	0.11	0.56	0.21
2004	0	2	0	0.05	0.30	0.15
2005	0	2	0	0.05	0.30	0.15

Table A4. Summary statistics of the fees level for registration procedure of the enterprises with foreign investor in the Russian regions, divided by minimal monthly wage

	Minimum	Maximum	Median	Average	Standard deviation	Variation coefficient
1994	0.10	109.58	0.10	7.05	16.31	2.31
1995	0.04	136.03	0.06	8.60	21.38	2.49
1996	0.03	112.49	4.00	7.72	14.32	1.86
1997	0.02	200.00	5.00	10.85	25.12	2.32
1998	3.00	359.32	23.95	28.63	48.38	1.69
1999	3.00	442.85	23.95	31.34	61.96	1.98
2000	3.00	505.37	23.95	32.05	67.07	2.09
2001	3.00	437.63	20.00	24.89	49.85	2.00
2002	3.00	470.25	20.00	24.92	52.91	2.12
2003	3.50	460.20	20.00	26.58	51.39	1.93
2004	6.00	200.00	20.00	21.71	19.58	0.90
2005	20.00	200.00	20.00	22.12	19.41	0.88

Table A5. Summary statistics for the duration of the registration procedure of the enterprises with foreign investors in the Russian regions

	Minimum	Maximum	Median	Average	Standard deviation	Variation coefficient
1994	3	21	21	19.87	4.69	0.24
1995	3	30	21	19.66	5.01	0.26
1996	3	30	21	19.94	4.94	0.25
1997	3	30	21	19.84	5.15	0.26
1998	3	30	21	20.04	4.83	0.24
1999	3	30	3	7.81	8.56	1.10
2000	3	30	3	8.72	9.39	1.08
2001	3	30	3	8.49	9.33	1.10
2002	3	30	5	9.16	8.08	0.88
2003	5	30	5	7.10	6.07	0.85
2004	5	30	5	5.82	3.87	0.66
2005	5	30	5	5.28	2.64	0.50

Table A6. Summary statistics for the number of the additional documents introduced in the Russian regions for the registration of the enterprises with foreign investors

	Minimum	Maximum	Median	Average	Standard deviation	Variation coefficient
1994	0	4	0	0.23	0.69	2.98
1995	0	4	0	0.24	0.70	2.86
1996	0	4	0	0.28	0.71	2.54
1997	0	4	0	0.28	0.66	2.36
1998	0	4	0	0.24	0.63	2.57
1999	0	3	0	0.21	0.55	2.64
2000	0	3	0	0.14	0.51	3.65
2001	0	3	0	0.13	0.51	3.92
2002	0	3	0	0.07	0.37	5.26
2003	0	3	0	0.05	0.34	7.26
2004	0	3	0	0.05	0.34	7.26
2005	0	3	0	0.03	0.32	9.22

Table A7. Summary statistics for the number of documents adopted in the Russian regions concerning licensing

	Minimum	Maximum	Median	Average	Standard deviation	Variation coefficient
1994	0	42	7	10.06	9.70	0.96
1995	0	29	7	8.63	6.95	0.81
1996	0	37	12	13.79	10.02	0.73
1997	0	45	11	12.88	9.61	0.75
1998	0	39	9	10.64	7.71	0.72
1999	0	41	13	13.57	8.90	0.66
2000	0	31	9	9.60	6.67	0.69
2001	0	37	7	8.44	7.21	0.85
2002	0	40	7	8.77	6.91	0.79
2003	0	40	4	5.30	5.86	1.11
2004	0	57	2	4.42	7.52	1.70
2005	0	19	3	3.47	3.54	1.02

Table 8. Summary statistics for the number of documents adopted in the Russian regions concerning certification

	Minimum	Maximum	Median	Average	Standard deviation	Variation coefficient
1994	0	9	1	1.01	1.60	1.58
1995	0	5	1	1.11	1.32	1.19
1996	0	9	1	1.48	1.83	1.23
1997	0	16	1	1.62	2.48	1.54
1998	0	19	1	1.57	2.66	1.70
1999	0	16	1	1.73	2.46	1.42
2000	0	7	1	1.28	1.43	1.12
2001	0	13	2	2.15	2.34	1.09
2002	0	11	1	0.98	1.56	1.60
2003	0	6	0	0.72	1.14	1.59
2004	0	6	0	0.63	1.17	1.86
2005	0	4	0	0.37	0.82	2.22

A2. Estimation results

Table A9. *Equation* 1. Dependent variable — gross regional product

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Licensing	–0.532	0.416	0.202	–0.743	0.559	0.192	–0.694	0.568	0.224
Certification	**–0.312**	**0.129**	**0.014**	**–0.327**	**0.161**	**0.043**	–0.139	0.208	0.505
Overall registration costs	–0.279	0.835	0.738	–0.547	0.980	0.577	**0.485**	**0.223**	**0.032**
Unemployment	–0.431	1.745	0.805	–0.891	2.209	0.687	–0.651	28.084	0.982
Fixed capital	**0.897**	**0.082**	**0.000**	**0.933**	**0.095**	**0.000**	0.397	0.268	0.141
Year 1996	**–10.843**	**1.347**	**0.000**	**–11.958**	**1.875**	**0.000**	**–7.914**	**1.580**	**0.000**
Year 1997	**–7.895**	**1.308**	**0.000**	**–9.099**	**1.792**	**0.000**	**–7.456**	**1.924**	**0.000**
Year 1998	**–9.046**	**1.299**	**0.000**	**–10.781**	**1.791**	**0.000**	**–8.291**	**1.917**	**0.000**
Year 1999	1.348	1.307	0.303	0.283	1.793	0.875	1.468	1.917	0.446
Year 2000	0.846	1.331	0.526	0.261	1.840	0.887	–0.031	1.755	0.986
Year 2001	–0.947	1.290	0.463	–2.039	1.796	0.258	–0.820	1.634	0.617
Year 2002	**–2.993**	**1.276**	**0.020**	**–4.197**	**1.758**	**0.018**	–1.452	1.722	0.401
Constant	**10.116**	**0.945**	**0.000**	**11.795**	**1.275**	**0.000**	**8.884**	**1.657**	**0.000**
R^2	0.71			0.74			0.46		

Table A10. *Equation* 1. Dependent variable — investments

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Licensing	–0.671	0.708	0.344	**–0.703**	**0.414**	**0.091**	–0.406	2.029	0.842
Certification	1.474	2.171	0.498	–0.464	1.195	0.698	11.628	7.772	0.138
Overall registration costs	0.179	0.143	0.212	0.813	0.740	0.273	0.121	0.083	0.150
Overall profit	1.069	1.019	0.295	0.610	0.539	0.259	–3.636	4.751	0.446
Fixed capital	0.182	1.426	0.899	–0.477	0.734	0.516	0.707	0.958	0.463
Previous year investments	**–0.526**	**0.056**	**0.000**	**0.408**	**0.067**	**0.000**	**–0.686**	**0.090**	**0.000**
Number of enterprises	**29.004**	**10.216**	**0.005**	2.446	6.311	0.699	**51.178**	**25.499**	**0.048**
Year 1997	–2.438	23.919	0.919	–12.885	14.326	0.369	68.753	78.300	0.382
Year 1998	0.640	24.442	0.979	–13.667	14.771	0.356	63.076	80.399	0.435
Year 1999	22.208	24.482	0.365	**24.543**	**14.508**	**0.092**	92.665	81.869	0.260
Year 2000	**73.987**	**23.949**	**0.002**	23.045	14.426	0.112	**164.85**	**70.616**	**0.022**
Year 2001	**49.673**	**22.382**	**0.027**	18.580	13.714	0.177	59.295	65.064	0.364
Year 2002	**51.551**	**22.762**	**0.024**	16.266	14.016	0.247	99.218	67.460	0.145
Year 2003	38.201	23.214	0.101	**27.441**	**14.335**	**0.057**	37.845	56.870	0.507
Constant	–24.361	24.081	0.312	11.012	14.287	0.442	–127.759	82.098	0.123
R^2	0.22			0.58			0.41		

Table A11. *Equation* 1. Dependent variable — trade turnover

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Licensing	–0.119	0.078	0.126	–0.129	0.094	0.170	–0.732	1.480	0.622
Certification	**–0.572**	**0.238**	**0.017**	**–0.793**	**0.272**	**0.004**	0.221	0.538	0.682
Overall registration costs	–0.126	0.156	0.420	–0.108	0.166	0.517	–0.508	0.591	0.392
Gross regional product	**0.517**	**0.089**	**0.000**	**0.435**	**0.097**	**0.000**	**0.118**	**0.026**	**0.000**
Year 1996	**–2.785**	**0.259**	**0.000**	**–2.840**	**0.326**	**0.000**	**–2.323**	**0.437**	**0.000**
Year 1997	**–3.487**	**0.254**	**0.000**	**–3.628**	**0.319**	**0.000**	**–2.689**	**0.449**	**0.000**
Year 1998	**–3.161**	**0.259**	**0.000**	**–3.312**	**0.325**	**0.000**	**–2.352**	**0.468**	**0.000**
Year 1999	**–0.423**	**0.240**	**0.079**	–0.199	0.302	0.511	**–0.804**	**0.391**	**0.043**
Year 2000	**–1.730**	**0.234**	**0.000**	**–1.723**	**0.295**	**0.000**	**–1.619**	**0.381**	**0.000**
Year 2001	**–0.494**	**0.236**	**0.037**	–0.443	0.296	0.135	–0.502	0.389	0.200
Year 2002	**–0.618**	**0.236**	**0.009**	–0.442	0.293	0.133	–0.680	0.432	0.119
Constant	**4.037**	**0.205**	**0.000**	**4.236**	**0.254**	**0.000**	**3.110**	**0.391**	**0.000**
R^2	0.51			0.49			0.64		

Table A12. *Equation* 2. Dependent variable — Number of enterprises

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Licensing	0.311	3.473	0.929	0.124	0.396	0.755	0.101	0.080	0.210
Certification	–0.113	0.106	0.289	–0.788	1.121	0.483	–0.435	0.305	0.158
Overall registration costs	–0.358	0.664	0.563	–0.568	0.654	0.387	0.717	3.280	0.828
Gross regional product	–0.104	0.386	0.787	–0.285	0.390	0.466	0.127	0.140	0.365
Unemployment	–0.184	0.141	0.193	–0.235	0.149	0.118	–0.759	3.827	0.843
Investments	**0.453**	**0.233**	**0.053**	**0.116**	**0.061**	**0.060**	0.349	0.299	0.246
Number of enterprises in the previous year	**0.514**	**0.056**	**0.000**	**0.519**	**0.063**	**0.000**	**0.500**	**0.120**	**0.000**
Year 1997	**–0.465**	**0.109**	**0.000**	**–0.503**	**0.130**	**0.000**	–0.313	0.242	0.201
Year 1998	**–0.624**	**0.111**	**0.000**	**–0.595**	**0.134**	**0.000**	**–0.589**	**0.243**	**0.018**
Year 1999	**–0.281**	**0.106**	**0.009**	**–0.327**	**0.126**	**0.010**	–0.251	0.201	0.216
Year 2000	**–0.256**	**0.107**	**0.018**	**–0.323**	**0.126**	**0.011**	–0.126	0.214	0.559
Year 2001	**–0.223**	**0.102**	**0.029**	**–0.311**	**0.120**	**0.010**	–0.046	0.198	0.816
Year 2002	**–0.251**	**0.101**	**0.014**	–0.183	0.118	0.121	**–0.530**	**0.229**	**0.023**
Constant	**0.979**	**0.123**	**0.000**	**1.002**	**0.149**	**0.000**	**0.823**	**0.261**	**0.002**
R^2	0.84			0.87			0.78		

Table A13. *Equation* 2. Dependent variable — Number of small business enterprises

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Licensing	**–0.127**	**0.074**	**0.085**	**–0.155**	**0.085**	**0.070**	–0.126	0.158	0.426
Certification	–0.148	0.224	0.508	–0.361	0.240	0.135	0.342	0.616	0.581
Overall registration costs	0.397	1.410	0.778	0.127	1.410	0.928	0.619	0.658	0.349
Unemployment	**0.507**	**0.299**	**0.091**	0.309	0.322	0.338	**0.139**	**0.078**	**0.079**
Инвестиции	–0.464	0.492	0.347	–0.169	0.133	0.205	–0.524	0.591	0.378
Number of small enterprises in the previous year	**–0.111**	**0.060**	**0.066**	–0.114	0.070	0.104	–0.168	0.128	0.195
Year 1998	0.323	0.210	0.125	–0.162	0.250	0.519	–0.643	0.395	0.107
Year 1999	**0.605**	**0.217**	**0.006**	0.388	0.262	0.140	**1.235**	**0.411**	**0.004**
Year 2000	0.338	0.246	0.171	0.116	0.291	0.691	**1.064**	**0.501**	**0.037**
Year 2001	0.207	0.225	0.357	–0.009	0.272	0.974	**0.791**	**0.455**	**0.086**
Year 2002	**0.383**	**0.227**	**0.092**	**0.455**	**0.272**	**0.096**	0.496	0.447	0.270
Year 2003	0.092	0.217	0.673	0.126	0.270	0.642	0.232	0.417	0.579
Constant	**–0.259**	**0.156**	**0.099**	–0.080	0.184	0.663	**–0.700**	**0.307**	**0.025**
R^2	0.05			0.06			0.14		

Table A14. *Equation* 3. Dependent variable — Overall registration costs

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Illness	4.230	5.962	0.479	5.248	9.457	0.580	3.715	4.043	0.361
Pollution	7034.441	10391.94	0.498	11444.37	15042.49	0.448	–633.436	7942.077	0.937
Profit	55.151	59.198	0.352	43.412	81.649	0.596	**168.451**	**54.783**	**0.003**
Year 1997	**2030.337**	**930.946**	**0.030**	**2566.923**	**1411.374**	**0.071**	1057.17	638.998	0.102
Year 1998	**3076.558**	**892.698**	**0.001**	**3664.888**	**1350.162**	**0.007**	**2076.982**	**620.732**	**0.001**
Year 1999	979.333	891.827	0.273	1083.293	1283.156	0.400	463.472	689.856	0.503
Year 2000	1216.758	868.074	0.162	1241.02	1272.55	0.331	**1059.814**	**622.808**	**0.092**
Year 2001	**1525.405**	**869.694**	**0.081**	1561.086	1284.596	0.226	**1489.001**	**615.603**	**0.018**
Year 2002	**1626.334**	**908.704**	**0.075**	1703.734	1347.975	0.208	**1558**	**653.604**	**0.019**
Constant	–728.537	638.578	0.255	–814.868	957.328	0.396	–622.623	459.415	0.178
R^2	0.04			0.04			0.20		

Table A15. *Equation* 3. Dependent variable — Certification

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Illness	–0.270	0.209	0.198	–0.407	0.364	0.264	–0.259	0.223	0.248
Pollution	–1.640	4.779	0.732	–0.112	6.228	0.986	–3.766	7.291	0.606
Profit	–0.361	0.222	0.104	–0.328	0.213	0.125	–0.308	0.418	0.462
Year 1997	0.030	0.335	0.929	0.195	0.475	0.682	–0.337	0.438	0.443
Year 1998	–0.037	0.325	0.909	0.116	0.450	0.797	–0.226	0.437	0.606
Year 1999	0.298	0.315	0.345	0.348	0.428	0.416	0.191	0.436	0.662
Year 2000	–0.309	0.314	0.325	–0.294	0.430	0.495	–0.270	0.425	0.527
Year 2001	**0.984**	**0.320**	**0.002**	**0.925**	**0.436**	**0.035**	**1.147**	**0.437**	**0.009**
Year 2002	**–1.299**	**0.327**	**0.000**	**–0.955**	**0.449**	**0.034**	**–1.905**	**0.441**	**0.000**
Constant	–0.003	0.193	0.989	–0.060	0.270	0.825	0.085	0.255	0.738
R^2	0.08			0.06			0.18		

Table A15. *Equation* 3. Dependent variable — Licensing

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Illness	0.124	0.754	0.870	0.647	1.261	0.608	–0.156	0.903	0.863
Pollution	4.184	17.229	0.808	–2.971	21.598	0.891	13.568	29.474	0.646
Profit	0.508	0.646	0.431	0.421	0.738	0.569	–0.390	1.689	0.818
Year 1997	1.224	1.207	0.311	0.605	1.646	0.713	2.399	1.772	0.177
Year 1998	0.513	1.173	0.662	–0.661	1.559	0.672	2.187	1.767	0.218
Year 1999	**5.101**	**1.136**	**0.000**	**4.427**	**1.484**	**0.003**	**6.421**	**1.762**	**0.000**
Year 2000	–1.468	1.132	0.195	–1.221	1.491	0.413	–2.192	1.718	0.204
Year 2001	1.440	1.152	0.212	0.672	1.513	0.657	2.606	1.765	0.142
Year 2002	**2.997**	**1.178**	**0.011**	2.302	1.557	0.140	**3.957**	**1.783**	**0.028**
Constant	**–2.567**	**0.695**	**0.000**	**–2.229**	**0.938**	**0.018**	**–2.982**	**1.030**	**0.004**
R^2	0.06			0.04			0.12		

Table A16. *Equation* 4. Dependent variable — Illness

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Licensing	–0.220	0.282	0.436	–0.187	0.345	0.589	–0.494	0.519	0.343
Certification	0.909	0.859	0.290	1.421	0.995	0.155	–1.691	1.848	0.362
Overall registration costs	0.333	0.580	0.567	–0.020	0.063	0.975	**4.949**	**2.018**	**0.016**
Illness in the previous year	**–0.266**	**0.056**	**0.000**	**–0.293**	**0.077**	**0.000**	**–0.194**	**0.084**	**0.023**
Year 1997	**26.117**	**9.271**	**0.005**	**23.905**	**12.071**	**0.049**	**28.596**	**13.772**	**0.040**
Year 1998	**20.563**	**8.606**	**0.017**	**33.370**	**11.026**	**0.003**	–9.938	13.196	0.453
Year 1999	**56.664**	**8.658**	**0.000**	**57.557**	**11.090**	**0.000**	**50.715**	**13.627**	**0.000**
Year 2000	**54.693**	**8.970**	**0.000**	**47.832**	**11.405**	**0.000**	**62.592**	**13.854**	**0.000**
Year 2001	12.979	8.628	0.134	**18.591**	**10.935**	**0.091**	–7.118	13.586	0.601
Year 2002	**38.228**	**8.694**	**0.000**	**36.757**	**11.016**	**0.001**	**39.593**	**13.489**	**0.004**
Year 2003	**27.408**	**8.735**	**0.002**	**27.034**	**10.984**	**0.015**	16.519	14.895	0.270
Constant	**–15.276**	**6.122**	**0.013**	**–16.456**	**7.786**	**0.036**	–10.460	9.545	0.276
R^2	0.22			0.18			0.43		

Table A17. *Equation* 4. Dependent variable — Pollution

	All regions			High performing regions			Low performing regions		
	coefficient	standard error	p-value	coefficient	standard error	p-value	coefficient	standard error	p-value
Licensing	–0.205	0.201	0.310	–0.280	0.196	0.155	–0.215	0.318	0.502
Certification	–0.198	0.483	0.682	–0.550	0.547	0.316	0.163	0.112	0.150
Overall registration costs	0.417	0.390	0.286	0.319	0.411	0.439	0.195	0.161	0.230
Pollution in the previous year	–0.473	5.701	0.934	7.967	7.412	0.284	**–0.190**	**0.099**	**0.060**
Profit	**–0.132**	**0.031**	**0.000**	**–0.110**	**0.037**	**0.004**	–0.120	0.075	0.113
Gross regional product	**0.640**	**0.234**	**0.007**	**0.604**	**0.270**	**0.027**	–0.280	0.590	0.726
Year 1998	–0.003	0.005	0.504	–0.001	0.006	0.892	–0.002	0.008	0.758
Year 1999	–0.0003	0.005	0.959	0.003	0.007	0.646	–0.0001	0.009	0.996
Year 2000	0.003	0.005	0.543	0.008	0.006	0.216	0.001	0.009	0.892
Year 2001	–0.0001	0.006	0.982	0.001	0.007	0.873	0.005	0.009	0.585
Year 2002	–0.002	0.005	0.724	0.004	0.007	0.559	–0.006	0.009	0.537
Year 2003	–0.002	0.006	0.782	0.001	0.007	0.936	0.007	0.010	0.456
Constant	–0.003	0.004	0.400	–0.003	0.004	0.526	–0.005	0.006	0.372
R^2	0.33			0.47			0.07		

Table A18. *Equation* 5. Dependent variables — Corruption perception indexes

Independent variables	Dependent variable							
	Integral corruption perception index		Administrative corruption perception index		Legislative authorities corruption perception index		Executive authorities corruption perception index	
	coefficient	p-value	coefficient	p-value	coefficient	p-value	coefficient	p-value
Registration cost of an enterprise without foreign investors participation	0.305 (0.532)	0.575	–0.148 (0.239)	0.544	0.105 (0.145)	0.478	0.132 (0.161)	0.423
Duration of the registration procedure for an enterprise without foreign investors participation	0.140 (0.453)	0.762	–0.341 (0.204)	0.114	0.124 (0.123)	0.330	0.166 (0.137)	0.244
Additional documents for registration of an enterprise without foreign investors participation	**0.130** **(0.050)**	**0.019**	0.023 (0.022)	0.317	**0.028** **(0.014)**	**0.053**	**0.034** **(0.015)**	**0.036**
Registration cost of an enterprise with foreign investors participation	–0.164 (0.189)	0.398	0.503 (0.851)	0.563	0.095 (0.514)	0.855	–0.401 (0.571)	0.493
Duration of the registration procedure for an enterprise with foreign investors participation	–0.331 (0.418)	0.440	**0.352** **(0.188)**	**0.079**	0.064 (0.114)	0.583	–0.060 (0.126)	0.644
Additional documents for registration of an enterprise with foreign investors participation	0.078 (0.072)	0.291	0.005 (0.032)	0.889	–0.008 (0.019)	0.700	–0.004 (0.022)	0.863
Certification	–0.019 (0.028)	0.513	0.012 (0.013)	0.348	–0.010 (0.008)	0.190	–0.0002 (0.008)	0.981
Licensing	0.002 (0.007)	0.796	0.002 (0.003)	0.465	–0.001 (0.002)	0.486	–0.002 (0.002)	0.456
Overall profit	**–1.480** **(0.661)**	**0.040**	0.035 (0.297)	0.907	–0.239 (0.180)	0.203	**–0.045** **(0.020)**	**0.037**
Constant	**0.578** **(0.087)**	**0.000**	**0.439** **(0.039)**	**0.000**	**0.694** **(0.024)**	**0.000**	**0.669** **(0.026)**	**0.000**
R^2	0.05		0.25		0.05		0.13	

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